

## A PROPOSAL FOR THE CONSTRUCTION OF INTERDISCIPLINARY ISSUES FOR TESTS OF SECOND DEGREE ASSESSMENT PROCESSES IN BRAZIL USING ASTROBIOLOGY CONCEPTS

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**Astrobiology is an area that seeks to understand the issues of origin, evolution and distribution of Life in the Universe (Blumberg 2003). It is worth noting that it is a research area considered to be multi, inter and trans-disciplinary (Cockell 2002). Thus, Astrobiology could be used in the formation of contextualized questions that have an interdisciplinary character.**

In Brazil, Enem is the evaluation process that high school students must carry out to attend a public university. Classroom teaching practices are assessed through this test, which should develop questions with less fragmented content. Thus, teaching in the classroom should provide an improvement in learning, in which contextualization and interdisciplinarity should appear both during classes and in the selection process for Universities. However, this interdisciplinarity does not exist or is not fully achieved.

| year        | n° | multi | inter | trans | context |
|-------------|----|-------|-------|-------|---------|
| <b>2010</b> | 14 | 2     | 1     | 1     | 10      |
| <b>2011</b> | 14 | 0     | 0     | 1     | 13      |
| <b>2012</b> | 16 | 4     | 1     | 0     | 11      |
| <b>2013</b> | 17 | 0     | 1     | 1     | 15      |
| <b>2014</b> | 15 | 1     | 0     | 2     | 12      |
| <b>2015</b> | 16 | 0     | 2     | 1     | 13      |
| <b>2016</b> | 16 | 1     | 1     | 2     | 12      |
| <b>2017</b> | 16 | 3     | 2     | 1     | 10      |
| <b>2018</b> | 16 | 2     | 2     | 1     | 11      |
| <b>2019</b> | 15 | 2     | 1     | 0     | 12      |

From the literature review of the ENEM tests between the years 2010 to 2019 and the survey of data on the approach to physics in the last 10 years, it was possible to see that there are many contextual issues. However, the integration between the disciplines is not satisfactory, as shown in the table.

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Thus, the main objective is to present a proposal of constructed questions that have a level of interdisciplinarity using the concepts of Astrobiology. This is a research still in the formation of qualitative aspects and that aims to understand and explain the dynamics of the represented aspects (Aspers & Corte 2019). The base material for the construction of the methodology was made from a documental survey of published books and scientific articles.

(Example of Question)

Among the countless questions that cause human beings' concern is whether there is life elsewhere than on Earth. Based on that, answer, what is the name of the main ingredient for the existence of Life, its chemical formula and the ideal physical state in which it needs to find itself on the planetary surface so that life, as we know it, can exist, establish itself and evolve?

- (a) earth, FeS<sub>2</sub>
- (b) air, O<sub>2</sub>, gaseous
- (c) fire, C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>+6O<sub>2</sub>, plasma
- (d) photosynthesis, 6CO<sub>2</sub>+12H<sub>2</sub>O + light, gaseous
- (e) water, H<sub>2</sub>O, liquid

Finally, based on questions similar to the one obtained and mentioned above, the student is expected to have a vision that is not just disciplinary (dependent on 1 discipline). In the question presented, the student needs knowledge of Physics, Chemistry and Biology. It is noteworthy that the issue itself cannot be considered as a single area of knowledge in question.

### REFERENCES

- Aspers, P., & Corte, U. 2019, *Qualitative Sociology*, 42, 139
- Blumberg, B. S. 2003, *AstBio*, 3, 463
- Cockell, C. 2002, *SpPol*, 18, 263